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Q) A shopkeeper sells products. Some products are eligible for GST(Goods and Service

Tax) and some are not. To attract customers the shopkeeper has offered 5% discount for

Products whose unit price is more than Rs. 500 or more.

A customer has added below products to basket

**PROBLEM TO SOLVE**

1. Calculate the total amount to be paid to the shop-keeper

2. Identify the product for which we paid maximum GST

3. Create a suitable data structure to hold products in the basket

4. Let the solution be generic enough to accommodate more products to basket

**Ans:-**

**#include<bits/stdc++.h>**

**using namespace std;**

**class ShopKeeper**

**{**

**private:**

**map<string, vector<int>> mp;**

**int initialPrice = 0, afterApplyoff = 0, maximumGST = 0, finalTotal = 0;**

**string GSTProductName;**

**public:**

**void insertItemsInCart(string productName, int unitPrice, int GST, int qualtity) {**

**auto \_find = mp.find(productName);**

**if(\_find != mp.end()) {**

**mp[productName][0] = unitPrice;**

**mp[productName][1] = GST;**

**mp[productName][2] = qualtity;**

**cout << "Item value is Updated" << endl << endl;**

**}**

**else {**

**mp[productName].push\_back(unitPrice);**

**mp[productName].push\_back(GST);**

**mp[productName].push\_back(qualtity);**

**cout << "Items is added in basket" << endl << endl;**

**}**

**}**

**vector<string> CalculatePrice()**

**{**

**// map<string, vector<int>> result;**

**vector<string> vect;**

**for(auto i = mp.begin(); i != mp.end(); i++) {**

**//total for find GST**

**int totalAmount = (i->second[0] \* i->second[2]);**

**int GSTAmount = (totalAmount \* (i->second[1] / 100)) / 100; //finding GST**

**initialPrice = initialPrice + (i->second[0] \* i->second[2]); //Calculating Total Initial Price**

**if(i->second[0] > 500)**

**{**

**int discount = (GSTAmount - ((GSTAmount \* 5) / 100)); // finding disocunt after applyting GST**

**finalTotal = finalTotal + (totalAmount - discount);**

**// result[i->first].push\_back(initialPrice); //**

**// result[i->first].push\_back(initialPrice - discount);**

**}**

**else {**

**finalTotal = finalTotal + GSTAmount;**

**// result[i->first].push\_back(initialPrice);**

**// result[i->first].push\_back(0);**

**}**

**if(i->second[1] > maximumGST) {**

**maximumGST = i->second[1];**

**GSTProductName = i->first;**

**}**

**}**

**vect.push\_back(to\_string(initialPrice));**

**vect.push\_back(to\_string(finalTotal));**

**vect.push\_back(GSTProductName);**

**return vect;**

**}**

**};**

**int main() {**

**ShopKeeper sk;**

**int n = 1, price = 100, GST = 15, quantity = 5;**

**string ProductName = "raju";**

**cout << "how many Items you want to add : ";**

**cin >> n;**

**while (n--) {**

**cout << "Enter Product Name : ";**

**cin >> ProductName;**

**cout << endl << "Enter Unit Price : ";**

**cin >> price;**

**cout << endl << "Enter GST percentage : ";**

**cin >> GST;**

**cout << endl << "Enter Quantity of the Product : ";**

**cin >> quantity;**

**sk.insertItemsInCart(ProductName, price, GST, quantity);**

**}**

**vector<string> result = sk.CalculatePrice();**

**cout << "Total price is : " << result[0] << endl;**

**cout << "You have to pay : " << result[1] << endl;**

**cout << "Maximum GST Product is : " << result[2];**

**return 0;**

**}**